



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/780,984	02/09/2001	Kurt E. Spears	10011155-1	2245

7590 06/21/2007  
HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER
----------

PHAM, THIERRY L

ART UNIT	PAPER NUMBER
----------	--------------

2625

MAIL DATE	DELIVERY MODE
-----------	---------------

06/21/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

09/780,984

Applicant(s)

SPEARS ET AL.

Examiner

Thierry L. Pham

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

- This action is responsive to the following communication: Appeal Brief 2/9/07.
- Claims 1-19 are pending; claims 20-40 are withdrawn from consideration.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 1-19 are not enabling, since two photosensor arrays are shared by a single amplifier (first amplifier), then it is not possible to select a single array for scanning (e.g. output is coupled to said second linear array, *instead of first array*, when said second resolution is employed). Fig. 6 shows a controller unit 536 having a first coupler 538 and a controller 572 for providing control signals to switch 606 of first coupler *to designate which amplifier* to use (e.g. first amplifier 602 or second amplifier 604) for scanning. For example, if two photosensor arrays (e.g. array 546 and 548) are shared by a single amplifier (e.g. first amplifier 602), then either both signals from arrays (e.g. array 546 and 548) are output at the same time (i.e. assuming the switch is turned on via switch 606) or none at all (assuming the switch is turned off via switch 606). In other words, selecting one of the shared arrays for scanning is not possible (e.g. selecting second linear array, *instead of said first linear array*, for scanning when said second resolution is employed as cited in claim 1). Note: controller 572 is to control the switch 606 and not scanning arrays. A telephone conversation with Paul Qualey was initiated on 6/11/07 to discuss the above issues. The examiner explained to Mr. Qualey that even though on page 8, lines 12-15 of the original filed specification, where it disclosed two arrays are being shared by a single amplifier using a multiplexer. However, the original filed specification lacked sufficient information regarding using a multiplexer for

selecting a desired array for scanning. The examiner further explained to Mr. Qualey that claim 1 claims "a controller" and not a multiplexer. The examiner herein believed that two embodiments are being claimed in claim 1.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear whether a "first amplifier" as cited is to amplify both signals from first array and second array or a second amplifier is required to amplify signals from second array. In other words, the examiner is herein unclear whether a first embodiment (e.g. using a multiplexer to alternate photosensor arrays) or second embodiment (e.g. using a controller to alternate photosensor arrays) is being claimed. Clarification is herein required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suggs (US 6009214), and in view of Hatanaka et al (US 4634886).

Regarding claim 1, Suggs discloses a multiple resolution sensing apparatus (multi-resolution image sensing apparatus 50, fig. 3e, col. 1, lines 5-7) comprising:

- a plurality of first photosensor elements (plurality of photosensors 59 to form photosensor segment 58, fig. 3a) coupled together to form a first linear array (photosensor segment 58, fig. 3a) and having a first length (length as shown from 1p to Np, fig. 3a) and a first resolution

Art Unit: 2625

(photosensor segment 58 has different resolution from photosensor segment 60, fig. 3b, col. 3, lines 38-45 and col. 5, lines 38-42);

- a plurality of second photosensor elements (plurality of photosensors 61 to form photosensor segment 60, fig. 3b) coupled together to form a second linear array (photosensor segment 61, fig. 3b) and having a second length and a second resolution (photosensor segment 60 has different resolution from photosensor segment 58, col. 3, lines 38-45 and col. 5, lines 42-47);
- a coupler (coupler 54, fig. 3e, col. 44-45) having an output, said coupler coupled to said first linear array and to said second linear array (coupling photosensor segment 58 photosensor segment 60, fig. 3e, col. 44-45);
- a controller (controller is inherently included within a multi-resolution sensing apparatus for sending control signals to selected photosensor segment either automatically or manually, col. 4, lines 22-30 and col. 5, lines 25-30) coupled to said coupler and providing a control signal (control signal 4, lines 23-24) to said coupler such that said output is coupled to said first linear array when said first resolution (send control signal to photosensor segment 58 if first resolution is employed, fig. 3e, col. 4, lines 18-38 and col. 5, lines 48-51) is employed and such that said output is coupled to said second linear array, instead of said first linear array, when said second resolution is employed (send control signal to photosensor segment 60 instead of photosensor segment 58 if second resolution is employed, col. 4, lines 18-38 and col. 5, lines 52-57).

Suggs fails to explicitly teach and/or suggest a coupler having a first amplifier being operative to amplify signals provided by the first linear array and to amplify signals provided by the second linear array.

Hatanaka, in the same field of endeavor of photosensor elements (fig. 3), teaches an well-known example of a coupler (a coupler includes amplifier means 303, switching means 306, output amplifier means 308, fig. 3) having a first amplifier (amplifier means 303 includes plurality of amplifiers, fig. 3, col. 2, lines 47-55 and col. 3, lines 38-50) being operative to amplify signals provided by the first linear array (array CG1, fig. 3) and to amplify signals provided by the second linear array (CG2, fig. 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify image sensing device of Suggs to include a coupler having a first amplifier

as taught by Hatanaka because of a following reason: (●) to provide good S/N output characteristics (col. 2, lines 40-45 of Hatanak) via using amplifier means.

Therefore, it would have been obvious to combine Suggs with Hatanaka to obtain the invention as specified in claim 1.

Regarding claim 2, Suggs further discloses the apparatus of claim 1, wherein said first linear array and said second linear array (photosensor segment 58 & 60 are formed on a single array 50, fig. 3e) array are locate on a single substrate.

Regarding claim 3, Suggs further discloses the apparatus of claim 1, wherein said first linear array, said second linear array and said coupler are located on a single substrate (photosensor segment 58 & 60 and coupler 54 are formed on a single array 50, fig. 3e).

Regarding claim 4, Hatanaka further discloses the apparatus of claim 1, wherein said coupler further includes second amplifier (amplifier means 303, fig. 3), and wherein said first linear array, said second linear array and said coupler with said at least one amplifier are located on a single substrate.

Regarding claim 5, Suggs further discloses the apparatus of claim 1, wherein said first length and said second length (segments 58 and segments 60 lengths are same size, fig. 3a-3e) are substantially the same and at least equal to one dimension of an image to be sensed.

Regarding claim 6, Suggs further discloses the apparatus of claim 4, wherein said coupler further comprises a switch (switch between segments 58 and 60, col. 4, lines 18-30) controlled by said controller such that said switch couples said output to said first linear array when said first resolution is employed and such that said switch couples said output to said second linear array when said second resolution is employed (col. 4, lines 18-30).

Regarding claim 7, Hatanaka further discloses the apparatus of claim 6, wherein said first amplifier (fig. 3) is coupled between said switch and said first linear array such that charges detected by said plurality of first photosensor elements are amplified into a first electrical signal; and said second amplifier (fig. 3) coupled between said switch and said second linear array such that charges detected by said plurality of second photosensor elements are amplified into a second electrical signal.

Regarding claim 8, Suggs further discloses the apparatus of claim 1, wherein said first linear array and said second linear array detect only a first color (i.e. red, col. 1, lines 20-22) of light.

Regarding claim 9, Suggs further discloses the apparatus of claim 1, further comprising: a plurality of third photosensor elements (plurality of photosensors 59 to form segment 58, fig. 3c) coupled together to form a third linear array and having a third length and said first resolution (segment 58 of array 50, see right hand side, fig. 3e); a plurality of fourth photosensor elements (plurality of photosensors 61 to form photosensor segment 60, fig. 3b) coupled together to form a fourth linear array and having a fourth length and said second resolution (segment 60 of array 50, see right hand side, fig. 3e); a second coupler having an second output, said second coupler coupled to said third linear array and to said fourth linear array; a plurality of fifth photosensor elements coupled together to form a fifth linear array and having a fifth length and said first resolution; a plurality of sixth photosensor elements coupled together to form a sixth linear array and having a sixth length and said second resolution; a third coupler having a third output, said coupler coupled to said first linear array and to said second linear array, wherein said controller is coupled to said second coupler and said third coupler, and wherein said controller provides said control signal to said second coupler so that said second output is coupled to said third linear array when said first resolution is employed and so that said second output is coupled to said fourth linear array when said second resolution is employed, and wherein said controller provides said control signal to said third coupler so that said third output is coupled to said fifth

Art Unit: 2625

linear array when said first resolution is employed and so that said third output is coupled to said sixth linear array when said second resolution is employed. Array 50 as shown in fig. 3e contains plurality of segments 58, segments 60.

Regarding claim 10, Suggs further discloses the apparatus of claim 9, wherein said first linear array and said second linear array detect a first color of light, wherein said third linear array and said fourth linear array detect a second color of light, and wherein said fifth linear array and said sixth linear array detect a third color of light (RGB, 1, lines 20-25, it is well known that any arrays can be filtered to receive specific lights, for example, segments 58 can be filtered to receive red and segment 60 can be filtered to receive blue, and etc).

Regarding claim 11, Suggs further discloses the apparatus of claim 9, wherein said first linear array, said second linear array, said third linear array, said fourth linear array, said fifth linear array and said sixth linear array are located on a single substrate (plurality of different photosensors segments are located on a single array substrate 50, fig. 3e).

Regarding claim 12, Suggs further discloses the apparatus as in claim 11, wherein said first length, said second length, said third length, said fourth length, said fifth length and said sixth length are substantially the same (all segments are same size, fig. 3a-3e) and at least equal to one dimension of an image to be sensed.

Regarding claim 13, Suggs further discloses the apparatus as in claim 1, further comprising a plurality of third photosensor elements (plurality of photosensors 63, to form segment 62, fig. 3c) coupled together to form a third linear array and having a third length and a third resolution (photosensor segment 62 has different resolution from photosensor segment 58 and 60, col. 3, lines 38-45 and col. 6, lines 5-8), said third linear array coupled to said coupler and wherein said controller providing a control signal to said coupler such that said output is coupled to said third linear array when said third resolution is employed.



Art Unit: 2625

Regarding claim 14, Suggs further discloses the apparatus of claim 12, wherein said first linear array, said second linear array, said third linear array and said coupler are located on a single substrate (segments 58, 60, and 62 are formed on a single array substrate 50, fig. 3e).

Regarding claim 15, Suggs further discloses the apparatus of claim 12, wherein said first length, said second length and said third length are substantially the same (all segments are same size, fig. 3a-3e) and at least equal to one dimension of an image to be sensed.

Regarding claim 16, Suggs further the apparatus of claim 15, wherein said coupler further comprises a third amplifier coupled to said third linear array such that changes detected by said plurality of third photosensor elements are amplified (amplification, col. 3, lines 24-26) into a third electrical signal.

Regarding claim 17, Suggs further discloses the apparatus of claim 16, wherein said first linear array, said second linear array and said third linear array detect a first color of light (i.e. red, col. 1, lines 20-22).

Regarding claim 18, Suggs further discloses the apparatus of claim 13, wherein said first resolution corresponds to said first linear array having substantially 300 of said first photosensitive elements (segment 58 have plurality of photosenosrs ranging 1-to-N, fig. 3e), wherein said second resolution corresponds to said second linear array having substantially 600 of said second photosensitive elements, and wherein said third resolution corresponds to said third linear array having substantially 2400 of said third photosensitive elements.

Regarding claim 19, Suggs further discloses the apparatus of claim 18, wherein said third linear array is comprised of two rows, each row having substantially 1200 of said third photosensitive elements (segment 62 have plurality of photosenosrs ranging 1-to-N, fig. 3e).

***Response to Arguments***

Applicant's arguments filed 2/9/07 have been fully considered but they are not persuasive.

- Regarding claim 1, the applicant the cited prior arts of record (US 6009214 to Suggs and US 4634886 to Hatanaka et al) fail to teach and/or suggest a coupler having a first amplifier that is operative to amplify signals from a first linear array and a second linear array.

In response, the examiner disagrees. Fig. 3 of Hatanaka et al shows a coupler (comprising amplifier 303, switches 305 and output amplifier 308). Clearly, amplifier means 303 is operative to amplify signals from array CG1 and CG2 (first linear array and second linear array respectively).

- Regarding claim 1, the applicant repeatedly comparing “first amplifier” with “differential amplifier 308” as taught by Hatanaka, wherein input from each of the first and second arrays is provided to the differential amplifier 308, and wherein one of the switches associated with the first array and one of the switches associated with the second array are operated simultaneously in order to provide signals to the differential amplifier.

In response, the examiner did not rely upon “differential amplifier 308” as a first amplifier. As clearly stated in the final rejection dated 8/9/06, the examiner relied upon amplifier means 303 as first amplifier, and not “differential amplifier 308” as argued by the applicant.

- Regarding claim 1, the applicant argued the cited prior art of record (US 6009214 to Suggs and US 4634886 to Hatanaka et al) fail to teach and/or suggest a “controller”, the output of which “is coupled to said first linear array when said first resolution is employed and such that said output is coupled to said second linear array, instead of said first linear array, when said second resolution is employed”.

In response, the examiner disagrees. Suggs clearly teaches a controller for sending control signals to selected photosensor segment either automatically or manually (see col. 4, lines 22-30 and col. 5, lines 25-30) coupled to said coupler and providing a control signal (control signal 4, lines 23-24) to said coupler such that said output is coupled to said first linear array when said first resolution (*send control signal to photosensor segment 58 if first resolution is employed,*

*fig. 3e, col. 4, lines 18-38 and col. 5, lines 48-51*) is employed and such that said output is coupled to said second linear array, instead of said first linear array (*send control signal to photosensor segment 60 instead of photosensor segment 58 if second resolution is employed, col. 4, lines 18-38 and col. 5, lines 52-57*) when said second resolution is employed. In addition, the cited limitations/features “the output is coupled to said first linear array when said first resolution is employed and such that said output is coupled to said second linear array, *instead of said first linear array*, when said second resolution is employed” is not enabling. See 112, 1<sup>st</sup> paragraph rejection (not enabling) as discussed above for details.

In view of the appeal brief filed on 2/9/07, PROSECUTION IS HEREBY REOPENED due to new issue (112, 1<sup>st</sup> paragraph rejection for non-enabling matters) raised by the examiner. A new ground of rejection set forth above.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

### ***Conclusion***

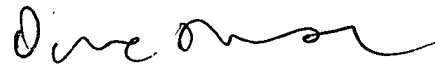
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thierry L. Pham whose telephone number is (571) 272-7439. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

Art Unit: 2625

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (571)272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thierry L. Pham



**DAVID MOORE**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**